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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,203	09/29/2003	Geoffrey Dearnaley	SWRI-2834-03	2668
23770	7590	06/15/2006	EXAMINER	
PAULA D. MORRIS MORRIS & AMATONG, P.C. 10260 WESTHEIMER, SUITE 360 HOUSTON, TX 77042-3110			SHEEHAN, JOHN P	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/674,203

**Applicant(s)**

DEARNALEY ET AL.

**Examiner**

John P. Sheehan

**Art Unit**

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-57,59-85 and 90-109 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-57,59-85 and 90-109 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112, 1<sup>st</sup> Paragraph***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 25, 26, 36, 37, 56, 57, 84, 85 and 101 to 106 and claims dependent on these specifically listed claims, that is, all of the claims remaining in this application are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- I. In claims 25 and 26 the recited proportion for X is now recited as based on the chromium content of the substrate. There is no support for chromium as the basis of the X content. Accordingly, claim 26, as amended, is drawn to new matter.

- II. In claims 36 and 37 the recited proportion for F is now recited as based on the chromium content of the substrate. There is no support for chromium as the basis of the F content. Accordingly, claims 36 and 37, as amended, are drawn to new matter.

III. In claims 56 and 57 the recited proportion for S is now recited as based on the chromium content of the substrate. There is no support for chromium as the basis of the S content. Accordingly, claims 56 and 57, as amended, are drawn to new matter.

IV. In claims 84 and 85 the recited proportion for O is now recited as based on the chromium content of the substrate. There is no support for chromium as the basis of the O content. Accordingly, claims 84 and 85, as amended, are drawn to new matter.

V. In line 2 of each of new claims 103 and 104, the limitation, "a chromium substrate other than stainless steel" does not find support in the application as filed. Accordingly, claims 103 and 104 are drawn to new matter. Applicants have referred to paragraph 0010 on page 3 of the specification. The Examiner does not agree. Paragraph 10 of the specification discloses that "stainless steels containing less than about 18% Cr" (emphasis added by the Examiner) is an example of a material that is not suitable for treatment. This passage in the specification supports the exclusion of stainless steels containing less than 18% Cr but it does not support the exclusion of all stainless steels as recited in claims 103 and 104. Any negative limitation or exclusionary proviso must have

basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) ("[the] specification, having described the whole, necessarily described the part remaining."). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 38 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation which does not have basis in the original

disclosure should be rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Note that a lack of literal basis in the specification for a negative limitation may not be sufficient to establish a *prima facie* case for lack of descriptive support. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993). See MPEP § 2163 - § 2163.07(b) for a discussion of the written description requirement of 35 U.S.C. 112, first paragraph. See MPEP 2173.05(i), last paragraph

VI. In claims 101 and 102, lines 1 and 2, the claim language, "a surface comprising a gradient from inside to outside" does not find support in the application as filed and therefore is new matter.

VII. In claims 103 to 106, lines 3 and 4, the claim language, "a surface of said chromium alloy substrate comprises a gradient from inside to outside" does not find support in the application as filed and therefore is new matter.

***Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 96 and 101 to 106 and claims dependent on these specifically listed claims, that is, all of the claims remaining in this application are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

I. In claim 96, line 1 "said tool" lacks an antecedent.

II. In claims 101 and 102, lines 1 and 2, the meaning of the phrase, "a surface comprising a gradient from inside to outside" is not clear in that the

meaning of the term “surface” is not clear in the context of the claims. For example, it is not clear how the surface of the claimed component can have a gradient that extends “from inside to the outside” in that a surface does not have an inside or an outside.

III. In like manner, in claims 103 to 106, lines 3 and 4, the meaning of the phrase, “a surface of said chromium alloy substrate comprises a gradient form inside to outside” is not clear in that the meaning of the term “surface” is not clear in the context of the claims. For example, it is not clear how the surface of the claimed component can have a gradient that extends “from inside to the outside” in that a surface does not have an inside or an outside.

### ***Claim Interpretation***

5. Claim 105 and 106 recite “a metallic substrate comprising a chromium coating”. In the specification, for example, page 2, the last line, the coating is defined as “comprising chromium” (emphasis added by the Examiner). In view of the use of the open terminology, “comprising”, used to describe the chromium coating, the claim language, “chromium coating” has been interpreted to include not just coatings consisting exclusively of chromium but also the to include coatings that contain chromium and any other elements in any amount.

The transitional term “comprising”, which is synonymous with “including,” “containing,” or “characterized by,” is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g.,

*>Mars Inc. v. H.J. Heinz Co.*, 377 F.3d  
1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004)

See MPEP 2111.03.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 4 to 9, 38 to 40, 59 to 65, 93 to 100 and 103 to 109 are rejected under 35 U.S.C. 102(b) as being anticipated by Ngan et al. (Ngan, US Patent No. 5,169,515).

Ngan teaches a steel having a gradient of chromium oxide concentration decreasing from the exterior to the interior of the steel (column 3, line 66 to column 4, line 5), wherein the chromium oxide gradient layer has a thickness of at least 0.1 to 0.2 microns which encompasses the thickness recited in applicants' claims. Ngan's disclosed invention is directed to steel preferably stainless steel (column 1, lines 8 to 11), but is not limited to stainless steels. Thus Ngan's disclosure encompasses applicants' new claims 103 and 104. Ngan's chromium oxide gradient is considered to be encompassed by the chromium oxide gradient recited in independent claims 104 and 105 and the chromium-X gradient recited in claims 103 and 105. Ngan also teaches that the chromium oxide gradient layer contains chromium carbide molecules as recited in applicants' claims. Ngan teaches that the steel can have a surface layer that is strongly depleted of Ni and Fe resulting in a Cr enriched layer (column 2, lines 40 to 68).

In view of the explanation under the heading "Claim Interpretation" set forth above, Ngan's Cr enriched layer is encompassed by applicants' claim language, "a metallic substrate comprising a chromium coating" recited in claims 105 and 106 and claims dependent from claims 105 and 106. The structures of the various components recited in claims 93 to 100 and 107 to 109 are not defined in the claims nor in the specification and therefore do not distinguish over Ngan's steel. Accordingly, applicants' invention as recited in the above listed claims invention does not distinguish over the invention taught by Ngan.

***Claim Rejections - 35 USC § 102/103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 10 to 24, 30 to 35, 66 to 83, 87, 90 and 92 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ngan et al. (Ngan, US Patent No. 5,169,515).

Ngan teaches as set forth above and is applied as set forth above.

Ngan is silent with respect to the properties recited in applicants' claims 10 to 24, 30 to 35, 66 to 83, 87, 90 and 92.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because Nagan's steel has a



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chromium oxide concentration that is encompassed by the instant claims, therefore Nagan's steel would be expected to possess all the same properties as recited in the instant claims, *In re Best*, 195 USPQ, 430 and MPEP 2112.01.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, *In re Best*, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' *In re Spada*, 15 USPQ2d 655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 195 USPQ 430, 433 (CCPA 1977)."

See MPEP 2112.01.

### ***Claim Rejections - 35 USC § 103***

10. Claims 25, 26, 84 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagan et al. (Nagan, US Patent No. 5,169,515).
11. Nagan teaches and is applied as set forth above.
12. Nagan is silent with respect to the oxygen content of the chromium oxide gradient layer.
13. However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the determination of the appropriate amount of oxygen is considered to well within the skill of the routineer in the art.

***Response to Arguments***

14. Applicant's arguments filed March 28, 2006 have been fully considered but they are not persuasive.

15. Many of applicants' arguments have been addressed in the revised statement of the rejections set forth above in response to applicants' amendment to the claims.

Applicants' remaining arguments are addressed as follows.

16. Applicants, relying on case law, argue that the Examiner has not pointed to the structure recited in claims 103 to 106. The Examiner is not persuaded in that applicants have not specifically identified the structure in claims 103 to 106 that applicants contend that the Examiner has not pointed out. In view of this, applicants' arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

17. Applicants argue that the Examiner cannot assume that the properties recited in claims 10 to 24 and 66 to 83 (10 to 24, 30 to 35, 66 to 83, 87, 90 and 92) are inherent. This argument is not persuasive. The Examiner has not assumed that the claimed properties are inherent. Instead, as set forth above in the statement of the rejection, the Examiner has set forth a rationale for the rejection of claims 10 to 24, 30 to 35, 66 to 83, 87, 90 and 92, based on a combination of Ngan's disclosure, case law and MPEP 2112.01. Applicants' have not pointed out why the Examiner's rationale is incorrect.

18. Applicants argue that the Examiner has not pointed to a teaching or suggestion in Ngan regarding the proportions recited in claims 25, 26, 84 and 85. The Examiner is

not persuaded. The Examiner has provided a rationale set forth in the statement of the rejection regarding why the claimed invention is obvious. However, applicants have not pointed why the Examiner's rationale is flawed.

### ***Conclusion***

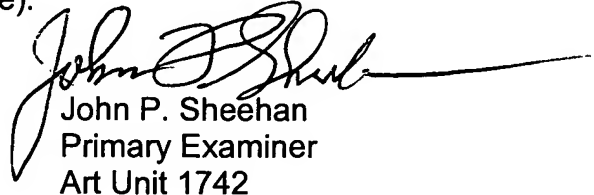
19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (6:45-4:30) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John P. Sheehan  
Primary Examiner  
Art Unit 1742

jps